REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-29 are pending in this case. Claims 2, 4, 11, and 21 have been amended to address cosmetic matters of form. No new matter has been added.

In the outstanding Office Action, the claims were objected to; Claims 2, 4, 6 and 7 were rejected under 35 U.S.C. §112, second paragraph; Claim 21 was rejected under 35 U.S.C. §101; Claims 1-5 and 9-29 were rejected under 35 U.S.C. §102(b) as anticipated by International Standard, Information Technology-JPEG 2000 Image Coding System (ISO/IEC 15444-1, hereinafter "ISO/IEC"); and Claims 6-8 were rejected under 35 U.S.C. §103(a) as unpatentable over ISO/IEC.

In response to the objection to Claims 1 and 11, Applicants respectfully request the objection be withdrawn. In response to the objection to Claim 1, Applicants respectfully submit that the word "sub-bands" of line 3 is sufficiently clear. The word "sub-bands" is grammatically correct and is supported in the specification. It is not required that Applicants employ the same nomenclature used in the ISO/IEC reference.

In response to the objection to Claim 11, Applicants have amended Claim 11 in accordance with the recommendation stated in the outstanding Office Action. Accordingly, Applicants respectfully request the objection to the claims be withdrawn.

In response to rejection of Claims 2, 4, 6 and 7 under 35 U.S.C. §112, second paragraph, Applicants respectfully request reconsideration of the rejection and traverse the rejection as discussed next.

In response to the rejection of Claims 2 and 4, Applicants have amended the words "said input picture" to read "an input picture." Because Claims 6 and 7 depend on Claim 4

there is sufficient antecedent basis for the limitation "the input picture" as recited in Claims 6 and 7.

Accordingly, Applicants respectfully request the rejection under 35 U.S.C. §112, second paragraph be withdrawn.

In response to the rejection of Claim 21 under 35 U.S.C. §101, Applicants have amended Claim 21 to recite "a computer readable medium encoded with a program for having a computer execute preset processing...." Accordingly, Applicants respectfully request the rejection be withdrawn.

In response to the rejection of Claims 1-5 and 9-29 under 35 U.S.C. §102(b) as anticipated by ISO/IEC, Applicants respectfully request reconsideration of the rejection and traverse the rejection as discussed next.

Briefly recapitulating, Claim 1 is directed to an image encoding apparatus including, *inter alia*:

> ... bitplane generating means for ***generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit;
>
> encoding object predicting means for ***predicting*** the number of bitplanes for encoding, as object of the encoding, and for ***extracting***, from an upper bit side of each code block, ***a number of bitplanes corresponding to the predicted number of bitplanes for encoding***;...

Independent claims 10, 12 and 14 recite similar features as independent Claim 1. Therefore, the arguments presented below are applicable to each of independent Claims 10, 12 and 14.

By way of background, Applicants' invention is directed to an apparatus and method for the JPEG -2000 system in which the processing load for arithmetic coding may be relieved and deterioration in picture quality may be suppressed to enable effective rate

control.[1] An exemplary picture encoding apparatus (1) includes a DC level shift unit (10), a wavelet transform unit (11), a quantization unit (12), an encoding block forming unit (13), a bitplane resolving unit (14), an encoding object prediction unit (15), a bit modeling unit (16), arithmetic coding unit (17), a rate controller (19), a header generator (20), and a packet generator (21). The bit modeling unit (16) and arithmetic coding unit (17) make up in EBCOT (embedded coding with optimized truncation) unit (18).[2] In the encoding object prediction unit (15), the bitplanes which are highly likely to be used are pre-estimated, and only these bitplanes are extracted and supplied to the EBCOT unit (18). Specifically, the number of effective bitplanes for one frame or one sub-band is counted and used as an index for the code volume which generates the number of the effective bitplanes in order to predict the number of bitplanes ultimately encoded.

Turning now to the applied art, ISO/IEC describes an image decoding system called JPEG-2000. The outstanding Office Action states:

> "...predicting could be interpreted two different ways. First, one may interpret predicting to be codestream termination, which is when we know how much bandwidth is available to use and terminating the codestream when the limit has been reached. This is a way predicting how much data we can compress. Annex D, Section D.4. The second way is to interpret predicting as the region of interest. Then we are able to predict and know how much data to send or not to send by knowing the region of interest. Annex H), as object of the encoding, and for extracting, from an upper bit side of each code block, a number of bitplanes corresponding to the predicted number of bitplanes for encoding (by knowing the above-discussed information we would be able to predict how much data to send; section D.4 and Annex H)...."[3]

However, ISO/IEC does not teach or suggest "encoding object predicting means for ***predicting*** the number of bitplanes for encoding, as object of the encoding, and for ***extracting***, from an upper bit side of each block, ***a number of bitplanes corresponding to the***

[1] See the specification at page 4, lines 1-4.
[2] See the specification at page 13, lines 2-9.
[3] See outstanding Office Action at pages 4 and 5.

predicted number of bitplanes for encoding," as in Applicants' independent Claim 1. In this regard, Applicants note that Annex D is not even directed to encoding, but instead, to ***the decoding process***. Assuming, *arguendo*, that terminating the codestream when the limit has been reached is "predicting," the cited sections of ISO/IEC nor the rest of ISO/IEC does not teach or suggest that the predicted number of bitplanes ***for encoding*** are ***extracted***. Thus, ISO/IEC fails to teach or suggest each and every element of independent Claim 1.

Applicants further traverse the rejection of Claim 1. In addition to the deficiencies stated above, ISO/IEC does not teach or suggest "bitplane generating means ***for generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit." The outstanding Office Action asserts that Annex D and Figure D-1 of ISO/IEC describe bitplane generating means for generating a plurality of bitplanes.[4] However, Annex D of ISO/IEC only describes ***decoding*** a bitplane at a time starting from the most significant bitplane with a nonzero element to the least significant bitplane.[5] Decoding a bitplane is not ***generating*** a bitplane. ***Decoding can only occur on an existing bitplane.***

Accordingly, Applicants respectfully submit that independent Claim 1 and all claims depending therefrom are patentable.

Turning now to independent Claim 9, Claim 9 is directed to an image encoding apparatus including, *inter alia*:

> ... bitplane generating means for ***generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit;...

Independent Claims 11, 13, and 15 contain similar features as independent Claim 9. Therefore, the arguments presented below are also applicable to each of independent Claims 11, 13, and 15.

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[4] See outstanding Office Action at pages 4.
[5] See ISO/IEC at page 99.

As stated above, ISO/IEC does not teach or suggest "bitplane generating means ***for generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit."

Accordingly, Applicants respectfully submit that Independent Claims 9, 11, 13, and 15, and all claims depending therefrom patentably distinguish over ISO/IEC.

Turning now to independent Claim 16, Claim 16 is directed to an image encoding apparatus including, *inter alia*:

> ...bitplane generating means for ***generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit;

Independent Claims 19, 20, and 21 recite similar features as independent Claim 16. Therefore, the arguments presented below with respect to independent Claim 16 are applicable to each of independent Claims 19, 20, and 21.

As stated above, ISO/IEC does not teach or suggest "bitplane generating means ***for generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit."

Accordingly, Applicants respectfully submit that Independent Claims 16, 19, 20, and 21, and all claims depending therefrom patentably distinguish over ISO/IEC.

Turning now to Independent Claim 22, Independent Claim 22 is directed to an image encoding apparatus including, *inter alia*:

> ... bitplane generating means for ***generating a plurality of bitplanes*** from the most significant bit to the least significant bit, from one code block to another;...

Independent Claims 27, 28 and 29 recite similar features as independent Claim 22. Therefore, the arguments presented below with respect to independent Claim 22 are also applicable to each of independent Claims 27-29.

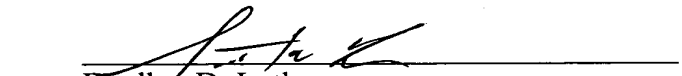
As stated above, ISO/IEC does not teach or suggest "bitplane generating means ***for generating a plurality of bitplanes*** from the most significant bit to the least significant bit, in terms of said code block as a unit."

Accordingly, Applicants respectfully submit that Independent Claims 22, and 27-29, and all claims depending therefrom patentably distinguish over ISO/IEC.

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present Application, including Claims 1-29, is patentably distinguished over the prior art, in condition for allowance, and such is respectfully requested at an early date.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Bradley D. Lytle
Attorney of Record
Registration No. 40,073

Scott A. McKeown
Registration No. 42,866

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 03/06)
DPB/rac

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